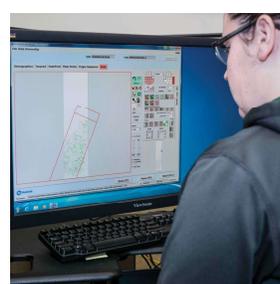
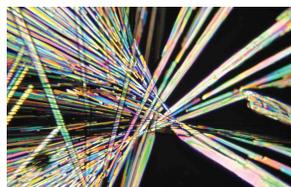
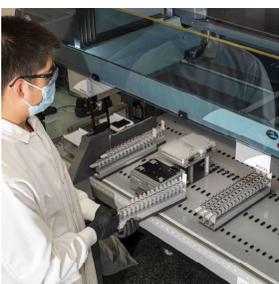


# Wisconsin Department of Justice 2021 Annual Report



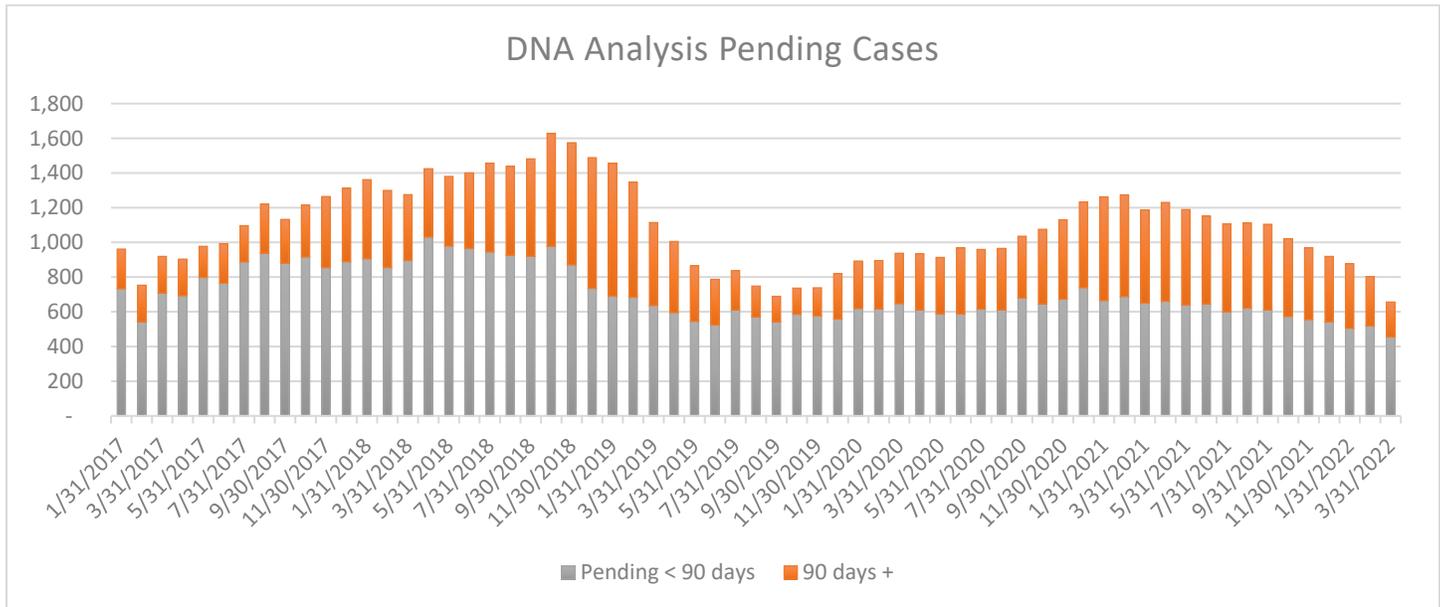
## Division of Forensic Sciences



## 2021 Division of Forensic Science Overview

In 2021, the dedicated employees of the Division of Forensic Sciences (DFS) made notable progress in important areas, including in reducing the queue for DNA analysis. While the impacts of the pandemic are evident in the data for 2021, the Wisconsin State Crime Laboratory (WSCL), subject to sufficient long-term funding and position authority, is well positioned for the future.

**Declining DNA queue.** A review of the queue for DNA analysis over time shows that the trend of a declining queue has returned:



Although the average turnaround time (TAT) for DNA analysis was up in 2021, the return to a decline in the DNA queue shows that the longer-term trend is positive and that the average TAT in 2021 was in significant part a function of short-term impacts of the pandemic.

**Enhanced services.** In 2021, DFS continued enhancing the services it provides to communities across the state.

- The DNA Analysis Unit completed the implementation of probabilistic genotyping software, increasing the ability to identify DNA matches in cases involving complex mixtures of multiple individuals' DNA or small samples of DNA.
- Footwear impression evidence can now be analyzed against the SoleMate® FPX database, increasing the likelihood that a footprint can be matched to a particular type of shoe.
- The Firearms Unit and the Latent Print and Footwear Unit moved to 100% verification which requires a second independent review of all results issued to ensure a high standard of quality assurance.

**Increased use of crime scene response team.** In 2019, DFS created a unit specifically dedicated to crime scene response, and there was a significant increase in crime scene responses for this unit last year. As a result, more investigations have been assisted by the expertise that this unit brings to the collection of evidence at some of the most complicated crime scenes statewide.

**Crime lab symposium.** DFS held its first crime lab symposium in 2019, allowing DFS to provide information directly to hundreds of stakeholders. In 2021, DFS conducted a virtual symposium

that was attended (virtually) by more than 500 people from 6 states. The 2022 symposium to be held this fall will highlight the 75<sup>th</sup> anniversary of the WSCL.

**Submission advisory committee.** DFS created and implemented a Submission Advisory Committee in 2021. This multidisciplinary team strengthens collaboration with DFS stakeholders by facilitating feedback from stakeholders on evidence submission guidelines.

**Challenges.** COVID-19 continued to present challenges for DFS in 2021. In 2020, DFS adapted workflows, implemented procedures for certain work to be done remotely, and created new data security protocols in order to protect the health of DFS employees and to ensure that DFS could continue fulfilling its critical mission. Further, following court closures in 2020, there was a spike in jury trials in 2021, increasing the amount of time staff were away from laboratory benchwork in order to testify. These consequences of the pandemic impacted case queues and, in turn, turnaround times.

Funding through the state budget and the number of authorized positions for DFS under state law remain challenges as well. An independent analysis released in 2018 made various recommendations for the crime labs, including the addition of a number of new positions. While a much-needed investment was made in the crime labs in the 2019-21 budget, DFS did not receive about half of the positions requested in that budget, and in the 2021-23 budget, the legislature declined to approve the request for four additional toxicology positions that would have been funded with program revenue.

**Well positioned for the long-term, subject to funding and position authority.** Despite these challenges, DFS is well positioned for the long-term if sufficient support is provided through the state budget process. In addition to the downward trend in the DNA queue, Governor Evers has made American Rescue Plan Act (ARPA) funding available to DFS, which will assist DFS in reducing queues and in responding to the increases in jury trials and speedy trial demands as the court system progresses through case backlogs resulting from the pandemic. This is one-time funding, however, so it does not replace the long-term need for adequate funding and position authority.

Comparisons with data from West Virginia University's Project Foresight also speak to the organizational health of DFS. As noted in last year's Annual Report, reporting median TAT will allow DFS to participate in Project Foresight. In doing so, DFS can engage in data collection and comparisons with other lab systems across the country. While Project Foresight data is not yet available for 2021, and is typically collected on a fiscal calendar, comparisons between Project Foresight data and DFS data are included below. Those comparisons show that, for most types of forensic analysis, the median turnaround times for DFS (using calendar years) were lower than those reported by participants in Project Foresight (typically using fiscal years). For more information about Project Foresight, please see their website: [FORESIGHT | John Chambers College of Business and Economics | West Virginia University \(wvu.edu\)](#).

## DFS Discipline Overview

The Division of Forensic Sciences was established as an independent division in 2019, though the Wisconsin State Crime Laboratory was originally established in 1947. DFS employs approximately 185 people including forensic scientists, technicians, evidence specialists, and crime scene response professionals and offers impartial forensic analysis in the following areas of science: toxicology, drug identification, biology/DNA analysis, DNA database, trace evidence analysis, firearms examination, toolmark analysis, latent print examination, footwear analysis, ten print comparison, and forensic imaging and video analysis.

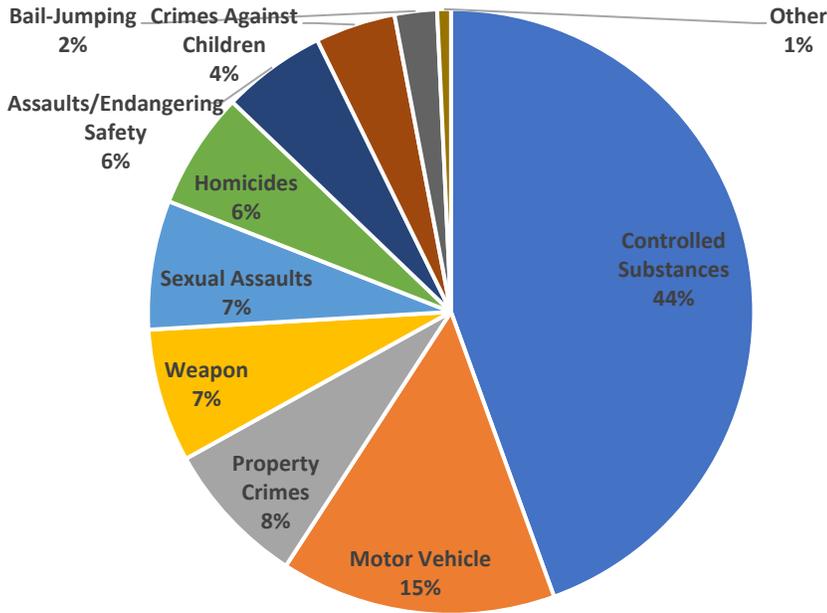
DFS crime laboratories – located in Madison, Milwaukee, and Wausau – are the only full-service forensic science laboratory system in Wisconsin. DFS is not a diagnostic laboratory system; the circumstances of each case submitted to DFS are unique. The needs of the submitting agency, the type of crime and impact on public safety as well as court/trial demands are considered for each case.

DFS provides unbiased scientific testing and analysis of evidence for every community in Wisconsin and staffs on-call Crime Scene Response Units, located at each laboratory, to assist law enforcement at major crime scenes by processing the crime scene and maintaining evidence integrity.

Services	Madison	Milwaukee	Wausau
AFIS	✓		
Controlled Substances	✓	✓	✓
Crime Scene Response	✓	✓	✓
DNA Analysis	✓	✓	
DNA Databank	✓		
Firearms and Toolmarks		✓	
Forensic Imaging	✓	✓	✓
Latent Prints and Footwear	✓	✓	✓
Toxicology	✓	✓	✓ (BAC only)
Trace Evidence		✓	

### Total Received Cases

Received Cases	2016	2017	2018	2019	2020	2021
<b>Madison</b>	4124	5978	4601	3662	2993	3015
<b>Milwaukee</b>	5143	6498	5548	4480	3850	3770
<b>Wausau</b>	3762	3319	2531	2471	2142	2512
<b>Total</b>	<b>13029</b>	<b>15795</b>	<b>12680</b>	<b>10613</b>	<b>8985</b>	<b>9297</b>



### 2021 Case Statistics

Each submitted case has the potential to be worked by multiple units and certain units are more heavily impacted by specific case types. For instance, sexual assault cases may require both a DNA analysis and a toxicology assignment.

### Chemistry Section

The primary function of the Chemistry Section is to analyze items of evidence to determine the presence or absence of a substance. The Chemistry Section consists of three units:

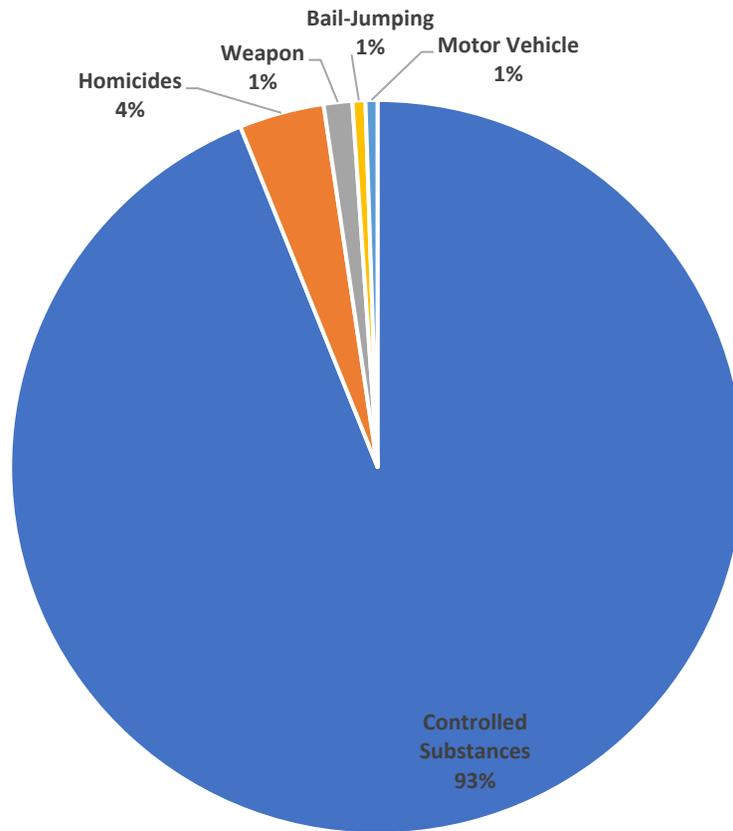
Controlled Substance	Analyze evidence for the presence (or absence) of controlled substances as defined in the Controlled Substance Act, Chapter 961.
Toxicology	Analyze bodily fluids or tissue for alcohol and controlled substances.
Trace Evidence	Analyze broad spectrum of physical evidence and/or substances for identification or comparison purposes.

### Controlled Substances

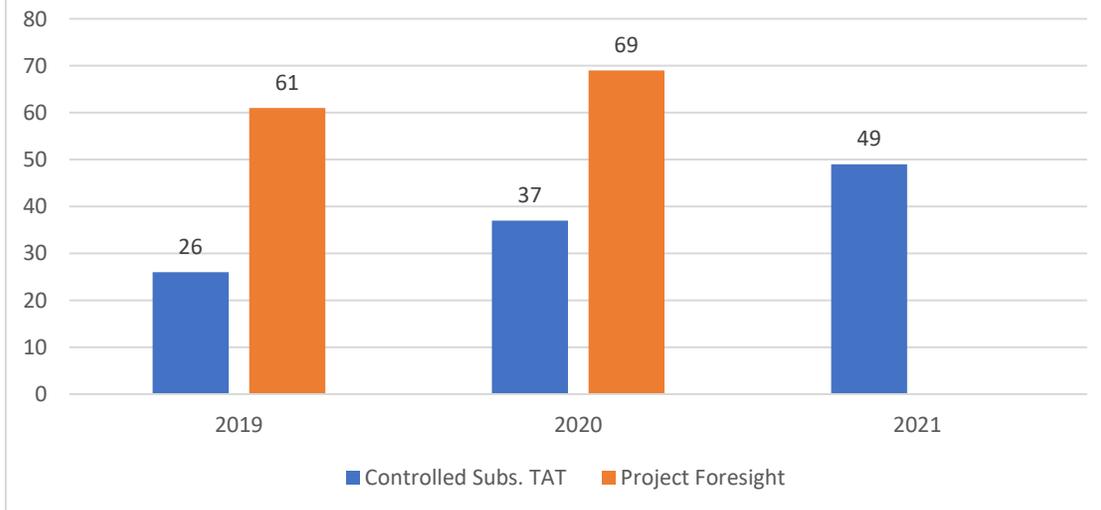
	2019	2020	2021
<b>Case Intake</b>	4861	3813	4430
<b>Case Output</b>	4725	3675	3522
<b>Mean TAT</b>	33	44	61
<b>Median TAT</b>	26	37	49

Controlled Substances continues to see an increase in the number of illicit tablet cases and complexity of mixtures, which results in additional time spent on cases. The unit also continued to see new designer drugs and analogs.

# Controlled Substances



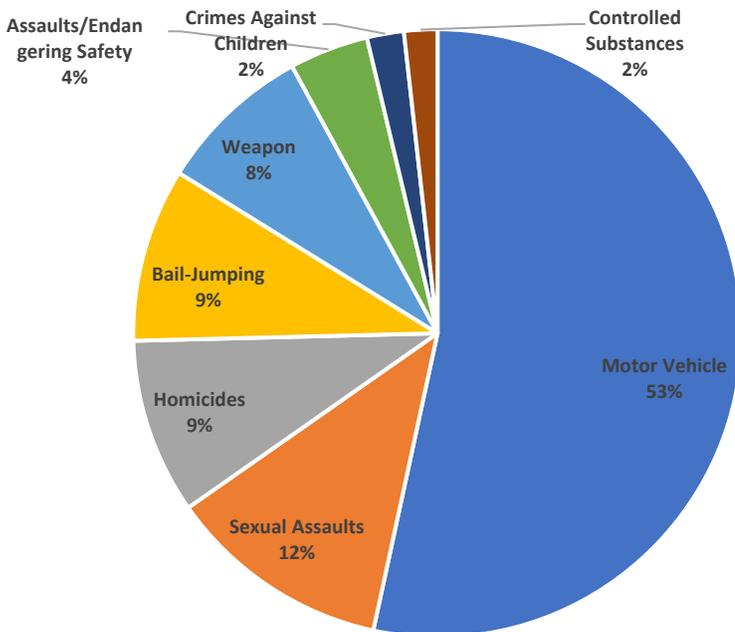
WSCL Median TAT by Year Compared to Project Foresight



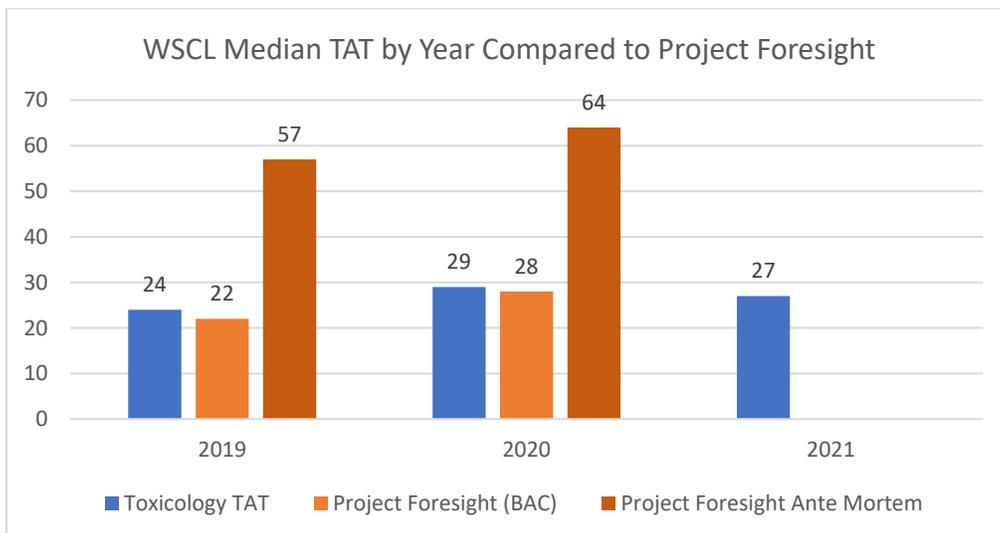
## Toxicology

	2019	2020	2021
<b>Case Intake</b>	3609	3972	4073
<b>Case Output</b>	3622	3829	4078
<b>Mean TAT</b>	36	39	48
<b>Median TAT</b>	24	29	27

Toxicology continues to see an increase in the number of cases submitted for analysis. Evolving case management strategies continue to improve efficiency. As noted above, however, the most recent state budget did not include four additional toxicology positions requested by DOJ that would have been funded with program revenue.



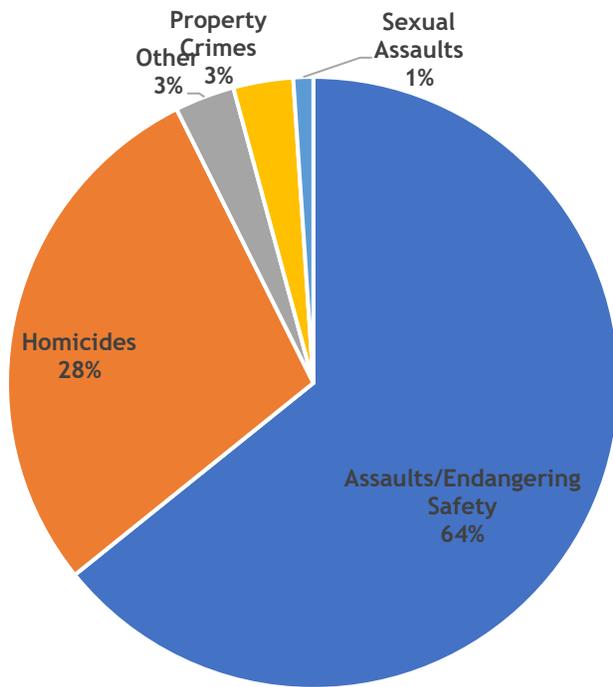
Project Foresight chart below: The investigative areas of Blood Alcohol and Toxicology (ante mortem) are reported separately by Project Foresight. WSCL captures both investigative areas as one discipline - Toxicology. WSCL Toxicology is compared to both disciplines as captured by Project Foresight.



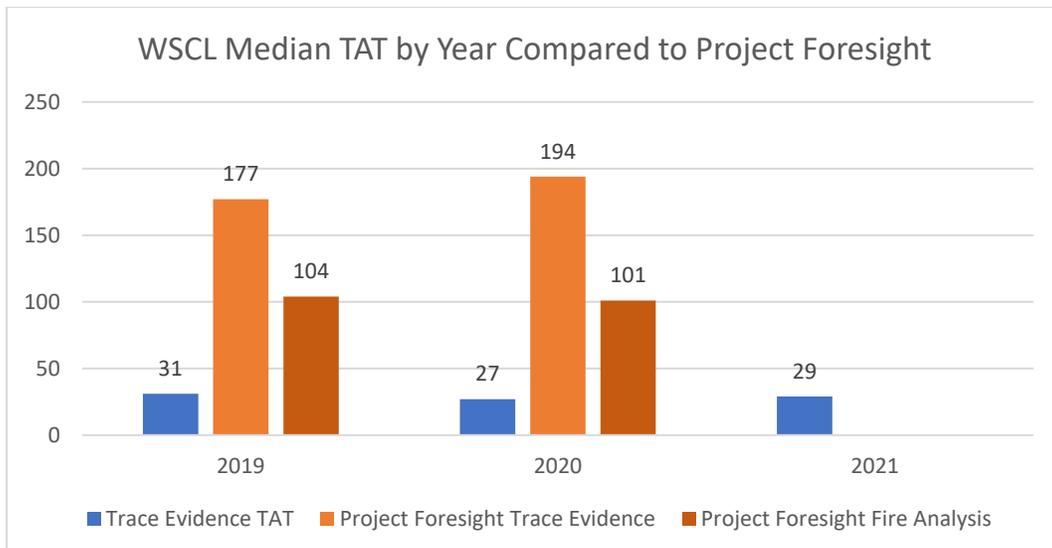
## Trace Evidence

	2019	2020	2021
<b>Case Intake</b>	118	145	95
<b>Case Output</b>	115	133	87
<b>Mean TAT</b>	45	68	85
<b>Median TAT</b>	31	27	29

The Trace Unit has seen a decrease in the number of submissions. The majority of case submissions continue to be arson cases. Because of ongoing staff training, the turnaround times vary by case type and analyses requested.



Project Foresight Chart below: The investigative areas of Trace Evidence and Fire Analysis are reported separately by Project Foresight. WSCL captures both investigative areas as one discipline - Trace Evidence. WSCL Trace Evidence is compared to both disciplines as captured by Project Foresight.



## Criminalistics Section

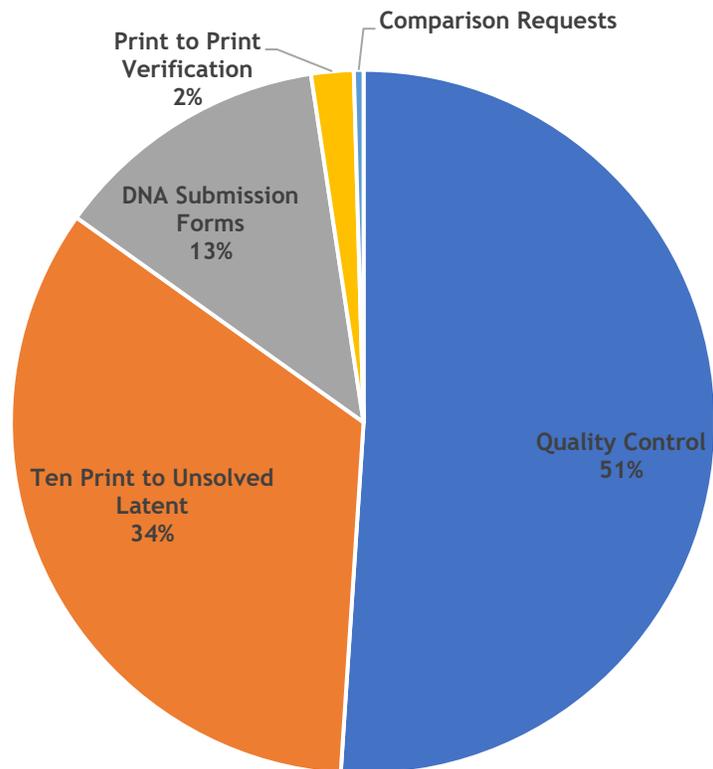
The Criminalistics Section is the most multifaceted section in the laboratory. The Criminalistics Section utilizes scientific principles to complete pattern recognition and interpretation, as well as imaging analysis. The Criminalistics Section consists of five units:

Automated Fingerprint Identification System	Perform comparative analysis of submitted fingerprints to evidence and known standards and maintain the Automated Fingerprint Identification System. In addition, conduct database searches and provide technical and analytical support to state and federal agencies.
Crime Scene Response	Respond to calls from law enforcement agencies for assistance at major crime scenes including homicides, attempted homicides, abductions, officer-involved critical incidents, the recovery of human remains, cold cases, and vehicle processing. Locate, document, and collect evidentiary items.
Firearms and Toolmarks	Analyze firearms for operability, perform comparative analysis on fired bullets and cartridge casings. In addition, conduct serial number restorations, distance determinations, and toolmark comparisons.
Forensic Imaging	Perform forensic video and image analysis and enhancement, from various forms of media or image capture devices. Use specialized techniques, high resolution imaging equipment and forensic applications to record and recover information. Provide photographic and video imaging services to all disciplines within the DFS, DOJ, law enforcement agencies and district attorneys throughout the state.
Latent Prints and Footwear	Develop and recover friction ridge (finger) prints and footwear impressions from items of evidence. Compare prints/impressions with known exemplars to establish identity/ exclusion/association and conduct database searches.

## Automated Fingerprint Identification System (AFIS)

	2019	2020	2021
<b>Quality Control</b>	137344	73358	83072
<b>Ten Print to Unsolved Latent</b>	107146	59469	55067
<b>DNA Submission Forms</b>	26973	15419	20742
<b>Print to Print Verification</b>	4837	4153	3171
<b>Comparison Requests</b>	1003	755	720

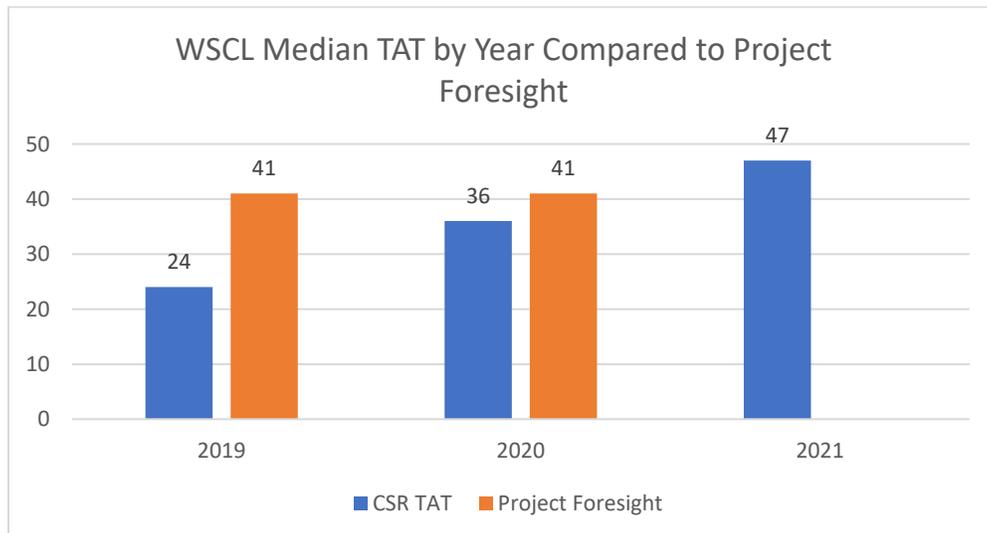
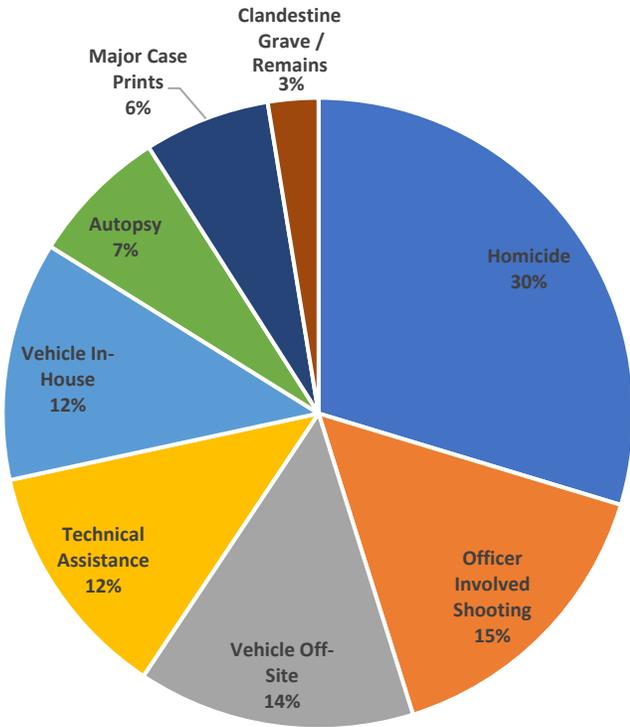
Last year saw the implementation of the new AFIS MBIS database. The chart on the left depicts records analyzed by type.



## Crime Scene Response

	2019	2020	2021
<b>Responses</b>	106	104	155
<b>Mean TAT</b>	37	49	54
<b>Median TAT</b>	24	36	47

The Crime Scene Response teams respond to many of the most complex crimes scenes in the state, providing a valuable service to law enforcement agencies of all sizes. Of note, the turnaround times in this unit refer to the finalizing of reports following the on-scene work, not the time for responses to crime scenes, which occur promptly after requests for assistance are received. The DFS staffs an Office of Crime Scene Response consisting of five full-time individuals in addition to approximately 30 individuals from various units throughout the laboratory. The units in each crime lab assist law enforcement at major crime scenes by processing the crime scene and maintaining evidence integrity. Crime scene response staff receive special training to aid in the recognition, documentation, recovery, and preservation of physical evidence.

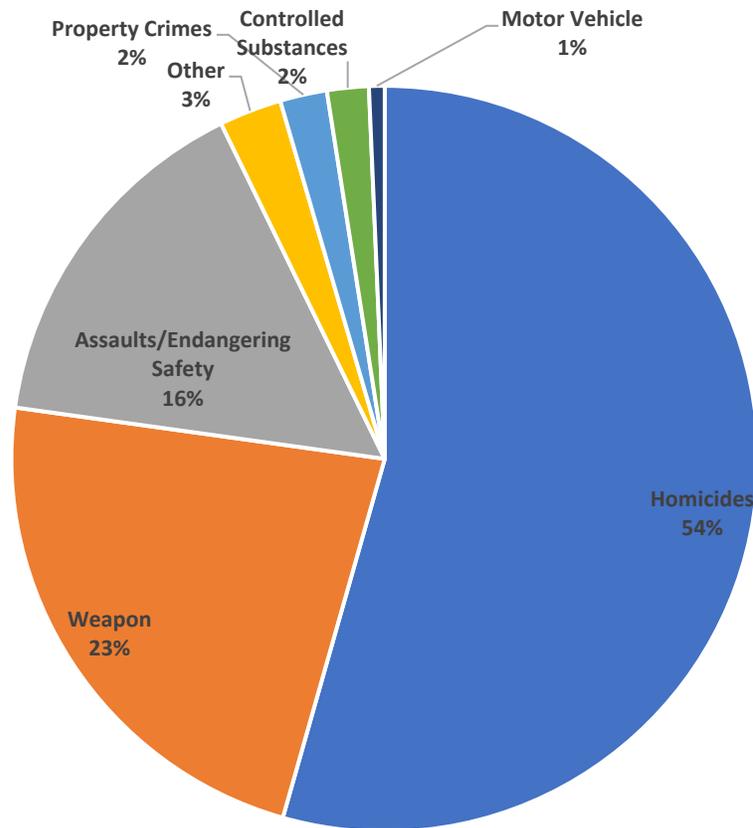


## Firearms and Toolmarks

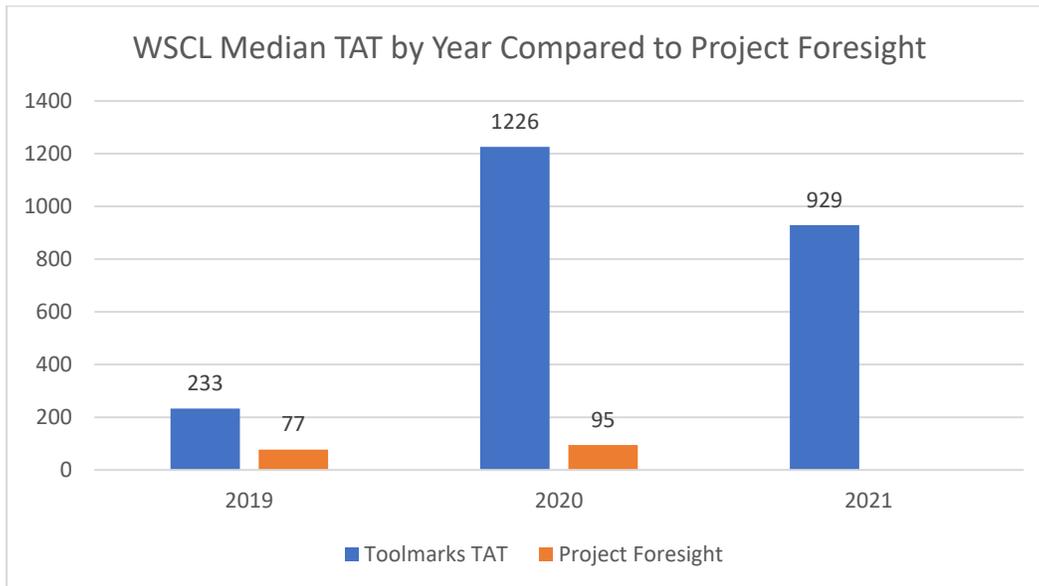
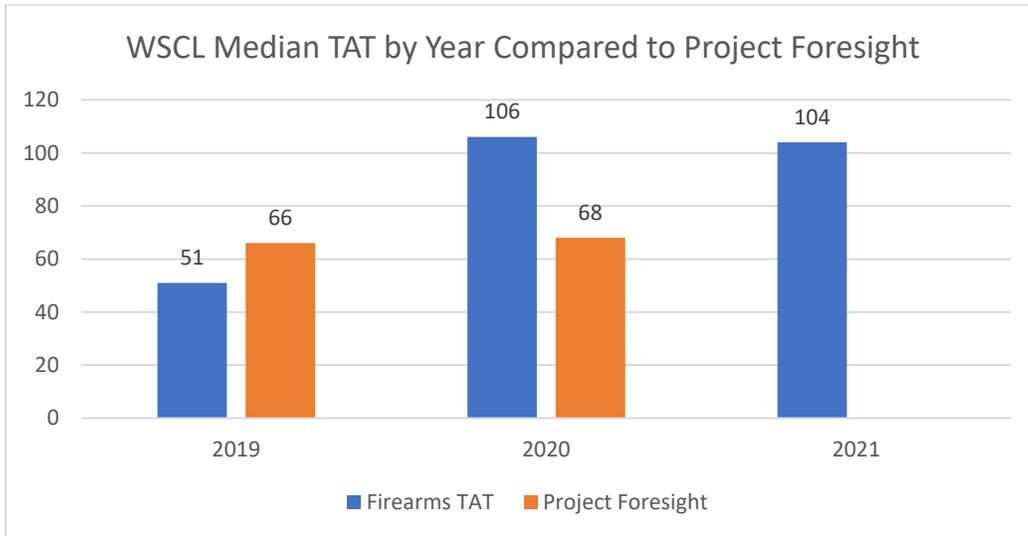
Firearms	2019	2020	2021
<b>Case Intake</b>	428	451	437
<b>Case Output</b>	577	403	399
<b>Mean TAT</b>	258	247	157
<b>Median TAT</b>	51	106	104

Firearms and toolmarks cases are worked by the same qualified examiners, and the caseload of the unit is prioritized based on case type, with priority given to crimes against a person. Toolmarks cases consist of property cases, such as burglaries, while firearms cases generally consist of crimes against a person, such as homicides and recklessly endangering safety cases.

Toolmarks	2019	2020	2021
<b>Case Intake</b>	14	23	7
<b>Case Output</b>	48	20	12
<b>Mean TAT</b>	235	1164	763
<b>Median TAT</b>	233	1226	929



## Firearms and Toolmarks

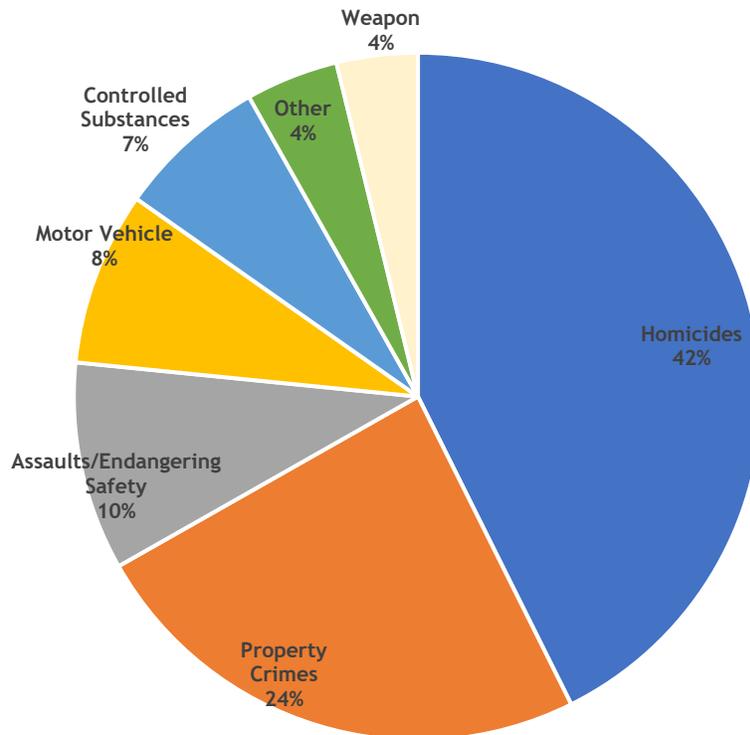


## Forensic Imaging

Imaging	2019	2020	2021
<b>Case Intake</b>	52	86	84
<b>Case Output</b>	52	77	71
<b>Mean TAT</b>	69	56	70
<b>Median TAT</b>	47	41	55

Internal Work orders	2019	2020	2021
<b>Case Intake</b>	611	502	470
<b>Case Output</b>	630	490	489
<b>Mean TAT</b>	40	32	42
<b>Median TAT</b>	28	23	32

Imaging assignments consist of casework from external and internal submissions. The external submissions are associated with cases from submitting agencies. The internal submissions come from within the crime laboratories and support other units' casework. In addition to the work submitted to the Forensic Imaging Unit, the imaging specialists have been training crime scene response photographers.

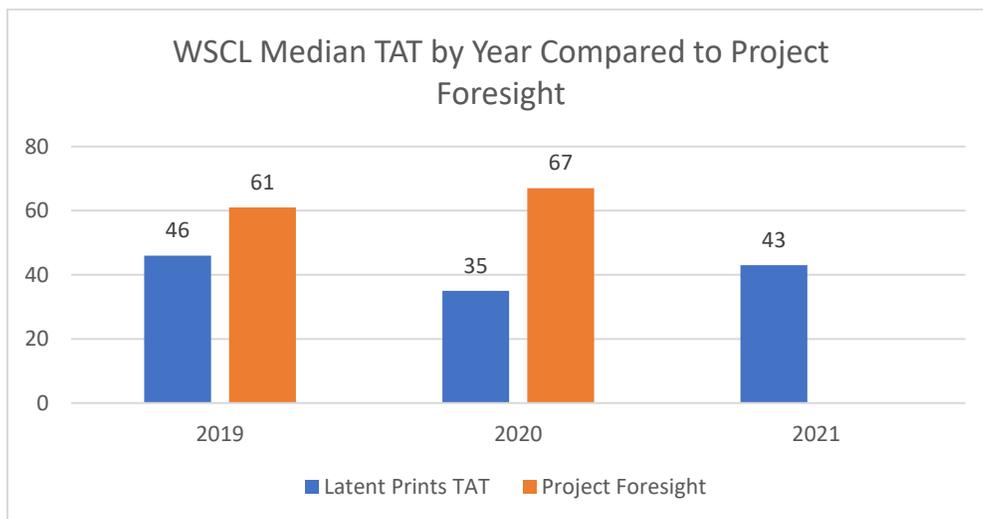
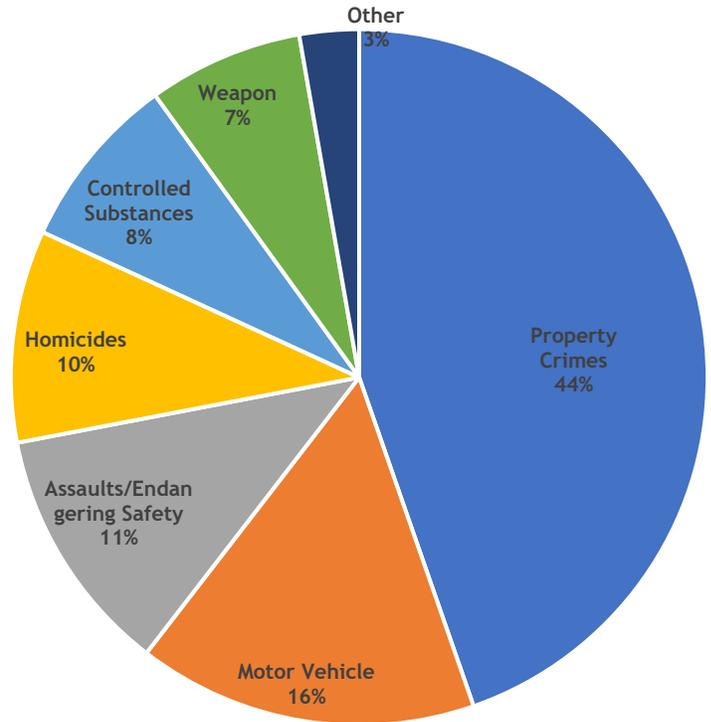


## Latent Prints and Footwear

Latent Print	2019	2020	2021
Case Intake	1003	941	1000
Case Output	1274	870	963
Mean TAT	124	55	71
Median TAT	46	35	43

The Latent Print and Footwear Unit moved to 100% verification of work which contributed to higher quality and an increased workload. The unit continues to train new staff.

Footwear	2019	2020	2021
Case Intake	28	21	18
Case Output	32	18	19
Mean TAT	195	140	12
Median TAT	136	140	11



## DNA Section

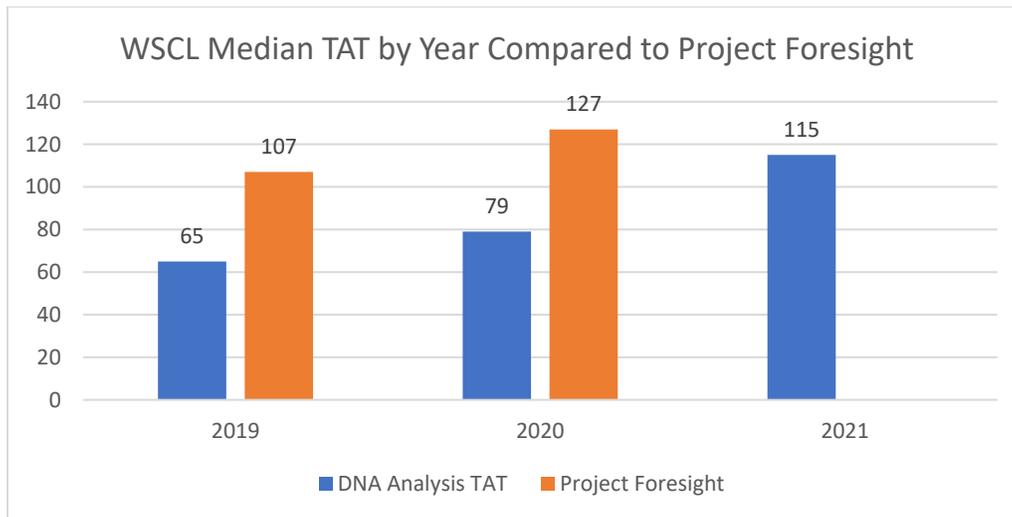
The primary function of the DNA Section is to analyze and compare biological material from evidence and/or individuals required by Wisconsin state law to provide a reference DNA sample. At the DFS, the DNA Section consists of two units: DNA analysis and DNA databank.

DNA Analysis	Examine evidence for the presence of biological material. Develop, analyze, and interpret DNA profiles utilizing scientific techniques. Compare DNA profiles with known standards to establish identity/exclusion/association and conduct database searches.
DNA Databank	Receive, verify acceptability, develop, analyze and maintain a repository of reference DNA samples in the Combined DNA Index System (CODIS).

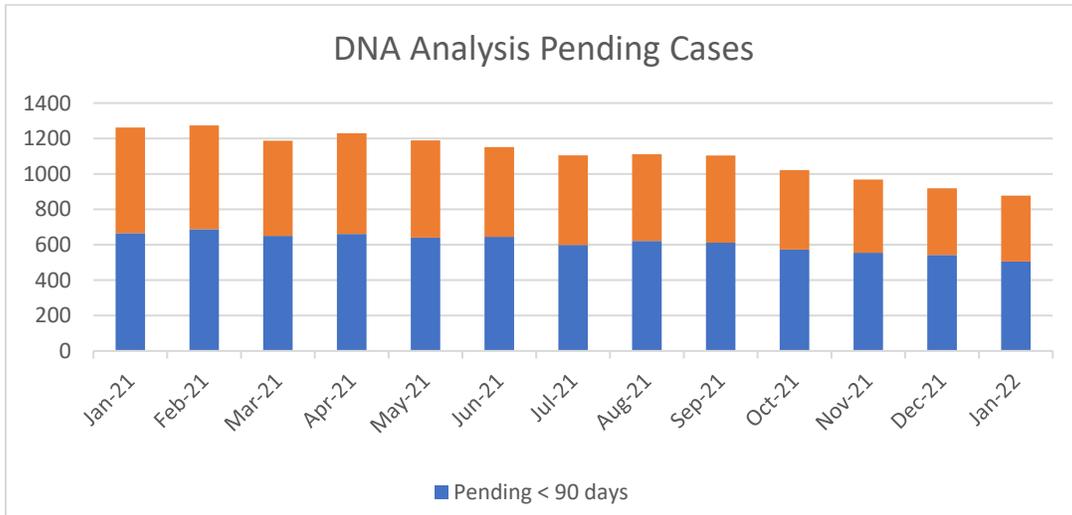
## DNA Analysis

	2019	2020	2021
<b>Case Intake</b>	4400	3820	3612
<b>Case Output</b>	4960	3144	3526
<b>Mean TAT</b>	97	94	128
<b>Median TAT</b>	65	79	115

The DNA Analysis Unit worked in 2021 to train and competency test staff in probabilistic genotyping, a new interpretation tool that assists the DNA analyst in resolving previously uninterpretable profiles which can happen when a DNA sample is very small or includes a mixture of multiple individuals' DNA. Even with the impact of COVID-19, the unit was able to successfully train a majority of the staff, perform casework in a remote environment, and evaluate the technologies to help increase efficiencies within the unit.



## DNA Analysis



## DNA Databank

	2019	2020	2021
<b>Sample Intake</b>	26808	15223	20736
<b>CODIS Uploads</b>	24882	13788	19888
<b>Leads Reported</b>	956	639	882
<b>Mean TAT</b>	29	37	44
<b>Median TAT</b>	28	36	41

Challenges with sample receipt amid the pandemic negatively impacted batching efficiencies. Nevertheless, the queue reduced to zero in June 2021, and the mean turnaround time from June 2021-December 2021 was under 30 days. In addition to assisting law enforcement with 882 investigative leads (over 30% were to high priority crimes), the unit assisted law enforcement with four familial searches, including one cold case lead, and six repeat familial searches.

